**DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

# WELDING INSPECTION REPORT

**Resident Engineer:** Pursell, Gary
**Address:** 333 Burma Road
**City:** Oakland, CA 94607

**Report No:** WIR-016060
**Date Inspected:** 04-Aug-2010

**Project Name:** SAS Superstructure
**Prime Contractor:** American Bridge/Fluor Enterprises, a JV
**Contractor:** American Bridge/Fluor Enterprises, a JV

**OSM Arrival Time:** 1000
**OSM Departure Time:** 1830
**Location:** Job Site

**CWI Name:** Jim Cunningham and Mike Johnson

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|---|---|---|---|---|---|---|---|
| **CWI Present:** | ☑ Yes | ☐ No | | | | | |
| **Inspected CWI report:** | ☐ Yes | ☑ No | ☐ N/A | **Rod Oven in Use:** | ☑ Yes | ☐ No | ☐ N/A |
| **Electrode to specification:** | ☑ Yes | ☐ No | ☐ N/A | **Weld Procedures Followed:** | ☑ Yes | ☐ No | ☐ N/A |
| **Qualified Welders:** | ☑ Yes | ☐ No | ☐ N/A | **Verified Joint Fit-up:** | ☑ Yes | ☐ No | ☐ N/A |
| **Approved Drawings:** | ☑ Yes | ☐ No | ☐ N/A | **Approved WPS:** | ☑ Yes | ☐ No | ☐ N/A |
| | | | | **Delayed / Cancelled:** | ☐ Yes | ☑ No | ☐ N/A |

**Bridge No:** 34-0006
**Component:** Orthotropic Box Girder

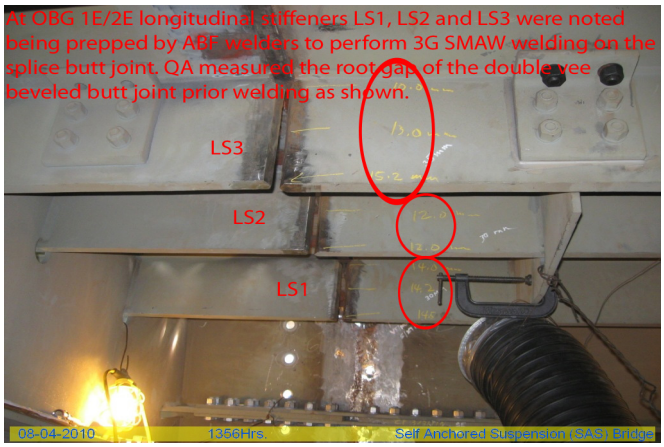
**Summary of Items Observed:**

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At OBG 4E/5E edge plate 'B' inside, ABF welder Hua Qiang Hwang was observed perform manual back welding in the 3G (vertical) position utilizing a dual shield Flux Cored Arc Welding (FCAW-G) with E71T-1M, 1/16" diameter wire electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-3110-3. The joint being welded has the backing bar gouged using the carbon air arc and was ground smooth. The gouged and ground backing bar removal of the splice butt joint was also Non Destructive Testing (NDT) tested using the Magnetic Particle Testing (MT). The splice joint was preheated to greater than 200 degrees Fahrenheit using Miller Proheat 35 Induction Heating System located at the opposite side of the plate being welded. During welding, ABF Quality Control (QC) Jim Cunningham was noted monitoring the welding parameters of the welder. At the end of the shift, the welder has not completed the cover pass welding of the splice butt joint and should remain tomorrow.

At OBG 5E/6E side plate 'C' outside, QA randomly observed ABF personnel perform plasma arc gouging on the backing bar removal of the splice butt joint. The personnel were using an Esab plasma arc gouging machine that has the nozzle holder attached to a Bug-o track. Gouging of the backing bar was not completed today and should continue tomorrow. Also at OBG 4E/5E side plate 'E', QA noted preparation for the overhead welding using the FCAW-G still ongoing. ABF welder Jeremy Dolman was also noted tack welding temporary attachment to hold the Bug-o track in place. At the end of the shift, preparation continued and no welding was performed.

At OBG 6E/7E top deck plate ‘A’ outside, QA randomly observed ABF welder Rick Clayborn perform splice welding on the splice of the backing bar. The welder was welding at 1G position using Shielded Metal Arc Welding (SMAW) with 1/8” diameter, E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1030. The joint being welded had a single V-groove butt joint with backing bar. After welding from one side of the plate, the splice plate was turned upside down and the backing was removed by grinding and back welded. During welding, ABF Quality Control (QC) Steven Mc Connell was noted monitoring the welding parameters of the welder. The ground removal of the backing bar was Magnetic Particle Testing (MT) tested by ABF QC Steven Mc Connell and the completely welded backing bar splices were Ultrasonic Testing (UT) tested by the same QC. One backing bar having four splices was completed by the welder during the shift.





**Summary of Conversations:**

1. At OBG 4E/5E edge plate ‘B’ inside, QA randomly observed ABF welder Jin Pei Wang back welding the splice butt joint using the FCAW-G. While the welder was grinding his weld pass, QA randomly checked the preheat of the splice joint being welded. During that time, the preheat at the bottom section (approximately 18 inches long) was noted losing the heat below 200 degrees Fahrenheit. Since there was no QC at the vicinity at the time, this QA called Leonard Cross by telephone but did not answer. QA called and was able to talk to Jesse Cayabyab by telephone and inform QC about the situation. QC Jim Cunningham came and instructed the welder to use the propane gas torch while ABF personnel were fixing the Miller Proheat 35 Induction Heating System outside. The preheat was brought back to the required temperature and the welder has resumed welding.

2. At OBG 1E/2E longitudinal stiffener LS1, LS2 and LS3, this QA was observing the preparation of welder James Zhen when fellow QA Danny Reyes called QA by phone and asked if ABF has installed preheat blankets for the splice welding of the stiffeners (HPS 485W, 30mm to 35mm thickness). Since there was no heater blankets installed at the time, QA informed Danny Reyes that there was none. After talking to Danny Reyes, QA also asked welder (since there was no QC at the time) if they will install one but the welder saidthe heating blankets were not going to be used for preheating the stiffeners.

**Comments**

# WELDING INSPECTION REPORT

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This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Mohammad Fatemi (916) 227-5298, who represents the Office of Structural Materials for your project.

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|---|---|---|
| **Inspected By:** | Lizardo,Joselito | Quality Assurance Inspector |
| **Reviewed By:** | Levell,Bill | QA Reviewer |